
PART R
EMERGENCY RESPONSE TO HAZARDOUS SUBSTANCE RELEASE

WAC

296-62-410	Emergency response to hazardous substance release.
296-62-41001	Scope and application.
296-62-41003	Definitions.
296-62-41010	Emergency response.
296-62-41011	Emergency response plan.
296-62-41013	Elements of an emergency response plan.
296-62-41015	Procedures for handling emergency response.
296-62-41017	Skilled support personnel.
296-62-41019	Specialist employees.
296-62-41020	Training.
296-62-41021	Training before participation.
296-62-41023	Trainers.
296-62-41025	Refresher training.
296-62-41030	Employee personal protective equipment.
296-62-41031	Personal protective equipment selection.
296-62-41033	Totally encapsulating chemical protective suits.
296-62-41035	Personal protective equipment (PPE) program.
296-62-41040	Medical surveillance and consultation for emergency response.
296-62-41041	Employees covered.
296-62-41042	Frequency of medical examinations and consultations.
296-62-41043	Content of medical examinations and consultations.
296-62-41044	Examination by a physician and costs.
296-62-41045	Information provided to the physician.
296-62-41046	Physician's written opinion.
296-62-41047	Recordkeeping of medical surveillance activities.
296-62-41060	Post emergency response operations.
296-62-41061	Removal of hazardous substances.
296-62-41063	Employees training and protective equipment.
296-62-41080	Appendices to Part R--Emergency response.
296-62-41081	Appendix A--Personal protective equipment test methods.
296-62-41082	Appendix B--General description and discussion of the levels of protection and protective gear.
296-62-41084	Appendix C--Compliance guidelines.
296-62-41085	Appendix D--References.
296-62-41086	Appendix E--Training curriculum guidelines.

WAC 296-62-410 Emergency response to hazardous substance release.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-410, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41001 Scope and application.

- (1) Scope. This section covers employers who have employees who work in emergency response operations for the releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard.
- (2) Application. All requirements of this chapter and chapters 296-24 and 296-155 WAC apply under their terms to emergency response operations whether covered by this part or not. If there is a conflict or overlap, the provision more protective of employee safety and health must apply.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41001, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41003 Definitions.

“Buddy system” means a system of organizing employees into work groups in such a manner that each employee of the work group is designated to be observed by at least one other employee in the work group. The purpose of the buddy system is to provide rapid assistance to employees in the event of an emergency.

“Clean-up operation” means an operation where hazardous substances are removed, contained, incinerated, neutralized, stabilized, cleared-up, or in any other manner processed or handled with the ultimate goal of making the site safer for people or the environment.

“Decontamination” means the removal of hazardous substances from employees and their equipment to the extent necessary to preclude the occurrence of foreseeable adverse health effects.

“Emergency response” or **“responding to emergencies”** means a response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance. Responses to incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area or by maintenance personnel are not considered to be emergency responses within the scope of this standard. Responses to release of hazardous substances where there is no potential safety or health hazard (i.e., fire, explosion, or chemical exposure) are not considered to be emergency responses.

“Facility” means:

Any building structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly-owned treatment works), well, pit, pond, lagoon, impoundment, ditch, storage container, motor vehicle, rolling stock, or aircraft; or

Any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any water-borne vessel.

“Hazardous materials response (HAZMAT) team” means an organized group of employees, designated by the employer, who are expected to perform work, to handle and control actual or potential leaks or spills of hazardous substances requiring possible close approach to the substance. The team members perform responses to releases or potential releases of hazardous substances for the purpose of control or stabilization of the incident. A HAZMAT team is not a fire brigade nor is a typical fire brigade a HAZMAT team. A HAZMAT team, however, may be a separate component of a fire brigade or fire department.

“Hazardous substance” means any substance designated or listed under this definition, exposure to which results or may result in adverse effects on the health or safety of employees:

Any substance defined under section 101(14) of CERCLA;

Any biological agent and other disease-causing agent which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any person, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations in such persons or their offspring;

Any substance listed by the United States Department of Transportation as hazardous materials under WAC 480-12-195; and

Hazardous waste.

“Hazardous waste” means: A waste or combination of wastes as defined in this section.

“Hazardous waste operation” means any operation conducted within the scope of chapter 296-62 WAC, Part P.

WAC 296-62-41003 (Cont.)

“Health hazard” means a chemical, mixture of chemicals, or a pathogen for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term “health hazard” includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes. It also includes stress due to temperature extremes. Further definition of the terms used above can be found in Appendix A to chapter 296-62 WAC, Part C.

“IDLH” or “immediately dangerous to life or health” means any atmospheric concentration of any toxic, corrosive, or asphyxiant substance that poses an immediate threat to life or would cause irreversible or delayed adverse health effects or would interfere with an individual's ability to escape from a dangerous atmosphere.

“Oxygen deficiency” means that concentration of oxygen by volume below which atmosphere supplying respiratory protection must be provided. It exists in atmospheres where the percentage of oxygen by volume is less than 19.5 percent oxygen.

“Permissible exposure limit” means the exposure, inhalation, or dermal permissible limit specified in WAC 296-62-075 through 296-62-07515.

“Published exposure level” means the exposure limits published in “*NIOSH Recommendations for Occupational Health Standards*” dated 1986 incorporated by reference, or if none is specified, the exposure limits published in the standards specified by the American Conference of Governmental Industrial Hygienists in their publication “Threshold Limit Values and Biological Exposure Indices for 1988-89” dated 1988 incorporated by reference.

“Post emergency response” means that portion of an emergency response performed after the immediate threat of a release has been stabilized or eliminated and clean-up of the site has begun. If post emergency response is performed by an employer's own employees who were part of the initial emergency response, it is considered to be part of the initial response and not post emergency response. However, if a group of an employer's own employees, separate from the group providing initial response, performs the clean-up operation, then the separate group of employees would be considered to be performing post-emergency response and subject to WAC 296-62-41060.

“Qualified person” means a person with specific training, knowledge, and experience in the area for which the person has responsibility and the authority to control.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41003, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41010 Emergency response. This section covers employers whose employees are engaged in emergency response no matter where it occurs except that it does not cover employees engaged in operations specified in WAC 296-62-300 (1)(a) through (d).

Those emergency response organizations who have developed and implemented programs equivalent to this section for handling releases of hazardous substances under Section 303 of SARA Title III must be deemed to have met the requirements of this section.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41010, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41011 Emergency response plan. An emergency response plan must be developed and implemented to handle anticipated emergencies before the commencement of emergency response operations. The plan must be in writing and available for inspection and copying by employees, their representatives, and WISHA personnel. Employers who will evacuate their employees from the danger area when an emergency occurs, and who do not permit any of their employees to assist in handling the emergency, are exempt from the requirements of this section if they provide an emergency action plan in accordance with WAC 296-24-567(1).

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41011, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41013 Elements of an emergency response plan. The employer must develop an emergency response plan for emergencies which must address, as a minimum, the following to the extent that they are not addressed elsewhere:

- (1) Preemergency planning and coordination with outside parties.
- (2) Personnel roles, lines of authority, training, and communication.
- (3) Emergency recognition and prevention.
- (4) Safe distances and places of refuge.
- (5) Site security and control.
- (6) Evacuation routes and procedures.
- (7) Decontamination.
- (8) Emergency medical treatment and first aid.
- (9) Emergency alerting and response procedures.
- (10) Critique of response and follow-up.
- (11) PPE and emergency equipment.
- (12) Emergency response organizations may use the local emergency response plan or the state emergency response plan or both, as part of their emergency response plan to avoid duplication. Those items of the emergency response plan that are being properly addressed by the SARA Title III plans may be substituted into their emergency plan or otherwise kept together for the employer and employee's use.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41013, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41015 Procedures for handling emergency response.

- (1) The senior emergency response official responding to an emergency must become the individual in charge of a site-specific incident command system (ICS). All emergency responders and their communications must be coordinated and controlled through the individual in charge of the ICS assisted by the senior official present for each employer.

Note: The "senior official" at an emergency response is the most senior official on the site who has the responsibility for controlling the operations at the site. Initially it is the senior officer on the first-due piece of responding emergency apparatus to arrive on the incident scene. As more senior officers arrive (i.e., battalion chief, fire chief, state law enforcement official, site coordinator, etc.), the position is passed up the line of authority which has been previously established.

- (2) The individual in charge of the ICS must identify, to the extent possible, all hazardous substances or conditions present and shall address as appropriate site analysis, use of engineering controls, maximum exposure limits, hazardous substance handling procedures, and use of any new technologies.
- (3) Based on the hazardous substances and/or conditions present, the individual in charge of the ICS must implement appropriate emergency operations, and assure that the personal protective equipment worn is appropriate for the hazards to be encountered. However, personal protective equipment must meet, at a minimum, the criteria contained in WAC 296-24-58513 when worn while performing fire fighting operations beyond the incipient stage for any incident.

WAC 296-62-41015 (Cont.)

- (4) Employees engaged in emergency response and exposed to hazardous substances presenting an inhalation hazard or potential inhalation hazard must wear positive pressure self-contained breathing apparatus, until the individual in charge of the ICS determines through the use of air monitoring that a decreased level of respiratory protection will not result in hazardous exposures to employees.
- (5) The individual in charge of the ICS must limit the number of emergency response personnel at the emergency site, in those areas of potential or actual exposure to incident or site hazards, to those who are actively performing emergency operations. However, operations in hazardous areas must be performed using the buddy system in groups of two or more.
- (6) Back-up personnel must stand by with equipment ready to provide assistance or rescue. Advance first-aid support personnel, as a minimum, must also stand by with medical equipment and transportation capability.
- (7) The individual in charge of the ICS must designate a safety official, who is knowledgeable in the operations being implemented at the emergency response site, with specific responsibility to identify and evaluate hazards and to provide direction with respect to the safety of operations for the emergency at hand.
- (8) When activities are judged by the safety official to be an IDLH condition and/or to involve an imminent danger condition, the safety official must have the authority to alter, suspend, or terminate those activities. The safety official must immediately inform the individual in charge of the ICS of any actions needed to be taken to correct these hazards at the emergency scene.
- (9) After emergency operations have terminated, the individual in charge of the ICS must implement appropriate decontamination procedures.
- (10) When deemed necessary for meeting the tasks at hand, approved self-contained compressed air breathing apparatus may be used with approved cylinders from other approved self-contained compressed air breathing apparatus provided that such cylinders are of the same capacity and pressure rating. All compressed air cylinders used with self-contained breathing apparatus must meet United States Department of Transportation and National Institute for Occupational Safety and Health criteria.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41015, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41017 Skilled support personnel. Personnel, not necessarily an employer's own employees, who are skilled in the operation of certain equipment, such as mechanized earth moving or digging equipment or crane and hoisting equipment, and who are needed temporarily to perform immediate emergency support work that cannot reasonably be performed in a timely fashion by an employer's own employees, and who will be or may be exposed to the hazards at an emergency response scene, are not required to meet the training required in this subsection for the employer's regular employees. However, these personnel must be given an initial briefing at the site before their participation in any emergency response. The initial briefing must include instruction in the wearing of appropriate personal protective equipment, what chemical hazards are involved, and what duties are to be performed. All other appropriate safety and health precautions provided to the employer's own employees must be used to assure the safety and health of these personnel.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41017, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41019 Specialist employees. Employees who, in the course of their regular job duties, work with and are trained in the hazards of specific hazardous substances, and who will be called upon to provide technical advice or assistance at a hazardous substance release incident to the individual in charge, must receive training or demonstrate competency in the area of their specialization annually.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41019, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41020 Training.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41020, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41021 Training before participation. Training must be based on the duties and functions to be performed by each responder of an emergency response organization. The skill and knowledge levels required for all new responders, those hired after the effective date of this standard, must be conveyed to them through training before they are permitted to take part in actual emergency operations on an incident.

Employees who participate, or are expected to participate, in emergency response, must be given training in accordance with the following:

- (1) First responder awareness level. First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They would take no further action beyond notifying the authorities of the release. First responders at the awareness level must have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas:
 - (a) An understanding of what hazardous substances are and the risks associated with them in an incident.
 - (b) An understanding of the potential outcomes associated with an emergency created when hazardous substances are present.
 - (c) The ability to recognize the presence of hazardous substances in an emergency.
 - (d) The ability to identify the hazardous substances, if possible.
 - (e) An understanding of the role of the first responder awareness individual in the employer's emergency response plan including site security and control and the United States Department of Transportation's Emergency Response Guidebook.
 - (f) The ability to realize the need for additional resources and to make appropriate notifications to the communication center.
- (2) First responder operations level. First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and protect exposures. First responders at the operational level must have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in the following areas in addition to those listed for the awareness level and the employer must so certify:
 - (a) Knowledge of the basic hazard and risk assessment techniques.
 - (b) Know how to select and use proper personal protective equipment provided to the first responder operational level.
 - (c) An understanding of basic hazardous materials terms.
 - (d) Know how to perform basic control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available with their unit.
 - (e) Know how to implement basic decontamination procedures.
 - (f) An understanding of the relevant standard operating procedures and termination procedures.

WAC 296-62-41021 (Cont.)

- (3) Hazardous materials technician. Hazardous materials technicians are individuals who respond to releases or potential releases for the purpose of stopping the release. They assume a more aggressive role than a first responder at the operations level in that they will approach the point of release in order to plug, patch, or otherwise stop the release of hazardous substance. Hazardous materials technicians must have received at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the employer must so certify:
- (a) Know how to implement the employer's emergency response plan.
 - (b) Know the classification, identification, and verification of known and unknown materials by using field survey instruments and equipment.
 - (c) Be able to function within an assigned role in the incident command system.
 - (d) Know how to select and use proper specialized chemical personal protective equipment provided to the hazardous materials technician.
 - (e) Understand hazard and risk assessment techniques.
 - (f) Be able to perform advance control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available with the unit.
 - (g) Understand and implement decontamination procedures.
 - (h) Understand termination procedures.
 - (i) Understand basic chemical and toxicological terminology and behavior.
- (4) Hazardous materials specialist. Hazardous materials specialists are individuals who respond with and provide support to hazardous materials technicians. Their duties parallel those of the hazardous materials technician, however, those duties require a more directed or specific knowledge of the various substances they may be called upon to contain. The hazardous materials specialist would also act as the site liaison with federal, state, local, and other government authorities in regard to site activities.

Hazardous materials specialists shall have received at least 24 hours of training equal to the technician level and in addition have competency in the following areas and the employer must so certify:

- (a) Know how to implement the local emergency response plan.
- (b) Understand classification, identification, and verification of known and unknown materials by using advanced survey instruments and equipment.
- (c) Know of the state emergency response plan.
- (d) Be able to select and use proper specialized chemical personal protective equipment provided to the hazardous materials specialist.
- (e) Understand in-depth hazard and risk techniques.
- (f) Be able to perform specialized control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available.
- (g) Be able to determine and implement decontamination procedures.
- (h) Have the ability to develop a site safety and control plan.

WAC 296-62-41021 (Cont.)

- (i) Understand chemical, radiological, and toxicological terminology and behavior.
- (5) On scene incident commander. Incident commanders, who will assume control of the incident scene beyond the first responder awareness level, must receive at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the employer must so certify:
 - (a) Know and be able to implement the employer's incident command system.
 - (b) Know how to implement the employer's emergency response plan.
 - (c) Know and understand the hazards and risks associated with employees working in chemical protective clothing.
 - (d) Know how to implement the local emergency response plan.
 - (e) Know of the state emergency response plan and of the Federal Regional Response Team.
 - (f) Know and understand the importance of decontamination procedures.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41021, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41023 Trainers. Trainers who teach any of the above training subjects must have satisfactorily completed a training course for teaching the subjects they are expected to teach, such as the courses offered by the United States National Fire Academy, or they must have the training and/or academic credentials and instructional experience necessary to demonstrate competent instructional skills and a good command of the subject matter of the courses they are to teach.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41023, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41025 Refresher training.

- (1) Those employees who are trained in accordance with WAC 296-62-41020 must receive annual refresher training of sufficient content and duration to maintain their competencies, or must demonstrate competency in those areas at least yearly.
- (2) A statement must be made of the training or competency, and if a statement of competency is made, the employer must keep a record of the methodology used to demonstrate competency.

[Statutory Authority: RCW 49.17.010, .040, .050. 99-17-094 (Order 99-01), § 296-62-41025, filed 08/17/99, effective 12/01/99.
Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41025, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41030 Employee personal protective equipment.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41030, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41031 Personal protective equipment selection.

- (1) Personal protective equipment (PPE) must be selected and used which will protect employees from the hazards and potential hazards they are likely to encounter as identified during the site characterization and analysis.
- (2) Personal protective equipment selection must be based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the site, the task-specific conditions and duration, and the hazards and potential hazards identified at the site.
- (3) Positive pressure self-contained breathing apparatus, or positive pressure air-line respirators equipped with an escape air supply must be used when chemical exposure levels present will create a substantial possibility of immediate death, immediate serious illness or injury, or impair the ability to escape.
- (4) Totally encapsulating chemical protective suits (protection equivalent to Level A protection as recommended in Appendix B) must be used in conditions where skin absorption of a hazardous substance may result in a substantial possibility of immediate death, immediate serious illness or injury, or impair the ability to escape.

WAC 296-62-41031 (Cont.)

- (5) The level of protection provided by PPE selection must be increased when additional information or site conditions indicate that increased protection is necessary to reduce employee exposures below permissible exposure limits and published exposure levels for hazardous substances and health hazards. (See WAC 296-62-41082 - Appendix B for guidance on selecting PPE ensembles.)

Note: The level of employee protection provided may be decreased when additional information or site conditions show that decreased protection will not result in increased hazardous exposures to employees.

- (6) Personal protective equipment must be selected and used to meet the requirements of WAC 296-800-160, and additional requirements specified in this part.

[Statutory Authority: RCW 49.17.010, .040, .050. 01-11-038, (Order 99-36), § 296-62-41031, filed 05/09/01, effective 09/01/01.

Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41031, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41033 Totally encapsulating chemical protective suits.

- (1) Totally encapsulating suits must protect employees from the particular hazards which are identified during site characterization and analysis.
- (2) Totally encapsulating suits must be capable of maintaining positive air pressure. (See WAC 296-62-41081 - Appendix A for a test method which may be used to evaluate this requirement.)
- (3) Totally encapsulating suits must be capable of preventing inward test gas leakage of more than 0.5 percent. (See WAC 296-62-41081 - Appendix A for a test method which may be used to evaluate this requirement.)

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41033, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41035 Personal protective equipment (PPE) program. A written personal protective equipment program, which is part of the emergency response plan required in WAC 296-62-41011 must be established. The PPE program must address the elements listed below. When elements, such as donning and doffing procedures, are provided by the manufacturer of a piece of equipment and are attached to the plan, they need not be rewritten into the plan as long as they adequately address the procedure or element.

- (1) PPE selection based on site hazards,
- (2) PPE use and limitations of the equipment,
- (3) Work mission duration,
- (4) PPE maintenance and storage,
- (5) PPE decontamination and disposal,
- (6) PPE training and proper fitting,
- (7) PPE donning and doffing procedures,
- (8) PPE inspection procedures before, during, and after use,
- (9) Evaluation of the effectiveness of the PPE program, and
- (10) Limitations during temperature extremes, heat stress, and other appropriate medical considerations.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41035, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41040 Medical surveillance and consultation for emergency response.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41040, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41041 Employees covered. The medical surveillance program must be instituted by the employer for the following employees:

- (1) All employees who are or may be exposed to hazardous substances or health hazards at or above the permissible exposure limits or, if there is no permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year;
- (2) Members of an organized and designated HAZMAT team and hazardous materials specialists must receive a baseline physical examination and be provided with medical surveillance.
- (3) Any emergency response employees who exhibit signs or symptoms which may have resulted from exposure to hazardous substances during the course of an emergency incident, either immediately or subsequently, must be provided with medical consultation as required in WAC 296-62-41041(2).

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41041, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41042 Frequency of medical examinations and consultations. Medical examinations and consultations must be made available by the employer to each employee covered under subsection (1) of this section on the following schedules:

- (1) For employees covered under WAC 296-62-41041 (1) and (2):
 - (a) Before assignment;
 - (b) At least once every twelve months for each employee covered unless the attending physician believes a longer interval (not greater than biennially) is appropriate;
 - (c) At termination of employment or reassignment to an area where the employee would not be covered if the employee has not had an examination within the last six months;
 - (d) As soon as possible upon notification by an employee that the employee has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the permissible exposure limits, or published exposure levels in an emergency situation;
 - (e) At more frequent times, if the examining physician determines that an increased frequency of examination is medically necessary.
- (2) For employees covered under WAC 296-62-41042 (1)(c) and for all employees including those employees covered by chapter 296-62 WAC, Part R who may have been injured, received a health impairment, developed signs or symptoms which may have resulted from exposure to hazardous substances resulting from an emergency incident, or exposed during an emergency incident to hazardous substances at concentrations above the permissible exposure limits or the published exposure levels without the necessary personal protective equipment being used:
 - (a) As soon as possible following the emergency incident or development of signs or symptoms;
 - (b) At additional times, if the examining physician determines that follow-up examinations or consultations are medically necessary.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41042, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41043 Content of medical examinations and consultations.

- (1) Medical examinations required by WAC 296-62-41042 must include a medical and work history (or updated history if one is in the employee's file) with special emphasis on symptoms related to the handling of hazardous substances and health hazards, and to fitness for duty including the ability to wear any required PPE under conditions (i.e., temperature extremes) that may be expected at the worksite.

WAC 296-62-41043 (Cont.)

- (2) The content of medical examinations or consultations made available to employees under this section shall be determined by the examining physician. The guidelines in the Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (see Appendix D, Reference #10) should be consulted.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41043, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41044 Examination by a physician and costs. All medical examinations and procedures must be performed by or under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine, and must be provided without cost to the employee, without loss of pay, and at a reasonable time and place.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41044, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41045 Information provided to the physician. The employer must provide one copy of this standard and its appendices to the examining physician, and in addition, the following for each employee:

- (1) A description of the employee's duties as they relate to the employee's exposures;
- (2) The employee's exposure levels or anticipated exposure levels;
- (3) A description of any personal protective equipment used or to be used;
- (4) Information from previous medical examinations of the employee which is not readily available to the examining physician; and

- (5) Information required in WAC 296-62-071 through 296-62-07121.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41045, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41046 Physician's written opinion.

- (1) The employer must obtain and furnish the employee with a copy of a written opinion from the examining physician containing the following:
 - (a) The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from work in hazardous waste operations or emergency response or from respirators use.
 - (b) The physician's recommended limitations upon the employees assigned work.
 - (c) The results of the medical examination and tests if requested by the employee.
 - (d) A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further examination or treatment.

- (2) The written opinion obtained by the employer must not reveal specific findings or diagnoses unrelated to occupational exposures.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41046, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41047 Recordkeeping of medical surveillance activities.

- (1) An accurate record of the medical surveillance required by this section must be retained. This record must be retained for the period specified and meet the criteria of chapter 296-62 WAC, Part B.
- (2) The record required in (a) of this subsection must include at least the following information:
 - (a) The name and Social Security number of the employee;
 - (b) Physicians' written opinions, recommended limitations, and results of examinations and tests;

WAC 296-62-41047 (Cont.)

- (c) Any employee medical complaints related to exposure to hazardous substances;
- (d) A copy of the information provided to the examining physician by the employer, with the exception of the standard and its appendices.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41047, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41060 Post emergency response operations.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41060, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41061 Removal of hazardous substances. Upon completion of the emergency response, if it is determined that it is necessary to remove hazardous substances, health hazards, and materials contaminated with them (such as contaminated soil or other elements of the natural environment) from the site of the incident, the employer conducting the clean-up must comply with chapter 296-62 WAC, Part P.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41061, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41063 Employees training and protective equipment. Where the clean-up is done on plant property using plant or workplace employees, such employees must have completed the training requirements of WAC 296-24-567(1), 296-62-071, and 296-62-054, and other appropriate safety and health training made necessary by the tasks that they are expected to be performed such as personal protective equipment and decontamination procedures. All equipment to be used in the performance of the clean-up work must be in serviceable condition and must have been inspected before use.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41063, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41080 Appendices to Part R--Emergency response.

Note: The following appendices serve as nonmandatory guidelines to assist employees and employers in complying with the appropriate requirements of this part. However, WAC 296-62-41030 makes mandatory in certain circumstances the use of Level A and Level B personal protective equipment protection.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41080, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41081 Appendix A--Personal protective equipment test methods. This appendix sets forth the nonmandatory examples of tests which may be used to evaluate compliance with WAC 296-62-41030. Other tests and other challenge agents may be used to evaluate compliance.

- (1) Totally encapsulating chemical protective suit pressure test.
 - (a) Scope.
 - (i) This practice measures the ability of a gas tight totally encapsulating chemical protective suit material, seams, and closures to maintain a fixed positive pressure. The results of this practice allow the gas tight integrity of a total-encapsulating chemical protective suit to be evaluated.
 - (ii) Resistance of the suit materials to permeation, penetration, and degradation by specific hazardous substances is not determined by this test method.
 - (b) Definition of terms.
 - (i) **“Totally encapsulated chemical protective suit (TECP suit)”** means a full body garment which is constructed of protective clothing materials; covers the wearer's torso, head, arms, and legs; may cover the wearer's hands and feet with tightly attached gloves and boots; completely encloses the wearer and respirator by itself or in combination with the wearer's gloves and boots.

WAC 296-62-41081 (Cont.)

- (ii) **“Protective clothing material”** means any material or combination of materials used in an item of clothing for the purpose of isolating parts of the body from direct contact with a potentially hazardous liquid or gaseous chemicals.
 - (iii) **“Gas tight”** means for the purpose of this test method the limited flow of a gas under pressure from the inside of a TECP suit to atmosphere at a prescribed pressure and time interval.
- (c) Summary of test method. The TECP suit is visually inspected and modified for the test. The test apparatus is attached to the suit to permit inflation to the pretest suit expansion pressure for removal of suit wrinkles and creases. The pressure is lowered to the test pressure and monitored for three minutes. If the pressure drop is excessive, the TECP suit fails the test and is removed from service. The test is repeated after leak location and repair.
- (d) Required supplies.
 - (i) Source of compressed air.
 - (ii) Test apparatus for suit testing including a pressure measurement device with a sensitivity of at least 1/4 inch water gauge.
 - (iii) Vent valve closure plugs or sealing tape.
 - (iv) Soapy water solution and soft brush.
 - (v) Stopwatch or appropriate timing device.
- (e) Safety precautions. Care must be taken to provide the correct pressure safety devices required for the source of compressed air used.
- (f) Test procedure. Before each test, the tester shall perform a visual inspection of the suit. Check the suit for seam integrity by visually examining the seams and gently pulling on the seams. Ensure that all air supply lines, fittings, visor, zippers, and valves are secure and show no signs of deterioration.
 - (i) Seal off the vent valves along with any other normal inlet or exhaust points (such as umbilical air line fittings or facepiece opening) with tape or other appropriate means (caps, plugs, fixture, etc.). Care should be exercised in the sealing process not to damage any of the suit components.
 - (ii) Close all closure assemblies.
 - (iii) Prepare the suit for inflation by providing an improvised connection point on the suit for connecting an airline. Attach the pressure test apparatus to the suit to permit suit inflation from a compressed air source equipped with a pressure indicating regulator. The leak tightness of the pressure test apparatus should be tested before and after each test by closing off the end of the tubing attached to the suit and assuring a pressure of three inches water gauge for three minutes can be maintained. If a component is removed for the test, that component must be replaced and a second test conducted with another component removed to permit a complete test of the ensemble.
 - (iv) The pretest expansion pressure (A) and the suit test pressure (B) must be supplied by the suit manufacturer, but in no case must they be less than (A). = 3 inches water gauge and (B). = 2 inches water gauge. The ending suit pressure (C) must be no less than eighty percent of the test pressure (B); i.e., the pressure drop must not exceed twenty percent of the test pressure (B).

WAC 296-62-41081 (Cont.)

- (v) Inflate the suit until the pressure inside is equal to pressure (A), the pretest expansion suit pressure. Allow at least one minute to fill out the wrinkles in the suit. Release sufficient air to reduce the suit pressure to pressure (B), the suit test pressure. Begin timing. At the end of three minutes, record the suit pressure as pressure (C), the ending suit pressure. The difference between the suit test pressure and the ending suit test pressure (B)-(C) must be defined as the suit pressure drop.
- (vi) If the suit pressure drop is more than twenty percent of the suit test pressure (B) during the three minute test period, the suit fails the test and must be removed from service.
- (g) Retest procedure.
 - (i) If the suit fails the test check for leaks by inflating the suit to pressure (A) and brushing or wiping the entire suit (including seams, closures, lens gaskets, glove-to-sleeve joints, etc.) with a mild soap and water solution. Observe the suit for the formation of soap bubbles, which is an indication of a leak. Repair all identified leaks.
 - (ii) Retest the TECP suit as outlined in (f) of this subsection.
- (h) Report. Each TECP suit tested by this practice must have the following information recorded.
 - (i) Unique identification number, identifying brand name, date of purchase, material of construction, and unique fit features; e.g., special breathing apparatus.
 - (ii) The actual values for test pressures (A), (B), and (C) must be recorded along with the specific observation times. If the ending pressure (C) is less than eighty percent of the test pressure (B), the suit shall be identified as failing the test. When possible, the specific leak location shall be identified in the test records. Retest pressure data must be recorded as an additional test.
 - (iii) The source of the test apparatus used must be identified and the sensitivity of the pressure gauge must be recorded.
 - (iv) Records must be kept for each pressure test even if repairs are being made at the test location.

Caution: Visually inspect all parts of the suit to be sure they are positioned correctly and secured tightly before putting the suit back into service. Special care should be taken to examine each exhaust valve to make sure it is not blocked. Care should also be exercised to assure that the inside and outside of the suit is completely dry before it is put into storage.

- (2) Totally encapsulating chemical protective suit qualitative leak test.
 - (a) Scope.
 - (i) This practice semiquantitatively tests gas tight totally encapsulating chemical protective suit integrity by detecting inward leakage of ammonia vapor. Since no modifications are made to the suit to carry out this test, the results from this practice provide a realistic test for the integrity of the entire suit.
 - (ii) Resistance of the suit materials to permeation, penetration, and degradation is not determined by this test method. ASTM test methods are available to test suit materials for those characteristics and the tests are usually conducted by the manufacturers of the suits.

WAC 296-62-41081 (Cont.)

- (b) Definition of terms.
 - (i) **“Totally encapsulated chemical protective suit (TECP suit)”** means a full body garment which is constructed of protective clothing materials; covers the wearer's torso, head, arms, and legs; may cover the wearer's hands and feet with tightly attached gloves and boots; completely encloses the wearer and respirator by itself or in combination with the wearer's gloves and boots.
 - (ii) **“Protective clothing material”** means any material or combination of materials used in an item of clothing for the purpose of isolating parts of the body from direct contact with a potentially hazardous liquid or gaseous chemicals.
 - (iii) **“Gas tight”** means for the purpose of this test method the limited flow of a gas under pressure from the inside of a TECP suit to atmosphere at a prescribed pressure and time interval.
 - (iv) **“Intrusion coefficient.”** A number expressing the level of protection provided by a gas tight totally encapsulating chemical protective suit. The intrusion coefficient is calculated by dividing the test room challenge agent concentration by the concentration of challenge agent found inside the suit. The accuracy of the intrusion coefficient is dependent on the challenge agent monitoring methods. The larger the intrusion coefficient, the greater the protection provided by the TECP suit.
- (c) Summary of recommended practice. The volume of concentrated aqueous ammonia solution (ammonia hydroxide, NH_4OH) required to generate the test atmosphere is determined using the directions outlined in WAC 296-62-41081 (2)(f)(i). The suit is donned by a person wearing the appropriate respiratory equipment (either a positive pressure self-contained breathing apparatus or a supplied air respirator) and worn inside the enclosed test room. The concentrated aqueous ammonia solution is taken by the suited individual into the test room and poured into an open plastic pan. A two-minute evaporation period is observed before the test room concentration is measured using a high range ammonia length of stain detector tube. When the ammonia reaches a concentration of between 1000 and 1200 ppm, the suited individual starts a standardized exercise protocol to stress and flex the suit. After this protocol is completed the test room concentration is measured again. The suited individual exits the test room and his stand-by person measures the ammonia concentration inside the suit using a low range ammonia length of stain detector tube or other more sensitive ammonia detector. A stand-by person is required to observe the test individual during the test procedure, aid the person in donning and doffing the TECP suit and monitor the suit interior. The intrusion coefficient of the suit can be calculated by dividing the average test area concentration by the interior suit concentration. A colorimetric indicator strip of bromophenol blue is placed on the inside of the suit facepiece lens so that the suited individual is able to detect a color change and know if the suit has a significant leak. If a color change is observed the individual should leave the test room immediately.
- (d) Required supplies.
 - (i) A supply of concentrated aqueous ammonium hydroxide, 58% by weight.
 - (ii) A supply of bromophenol/blue indicating paper, sensitive to 5-10 ppm ammonia or greater over a two-minute period of exposure [pH 3.0 (yellow) to pH 4.6 (blue)].
 - (iii) A supply of high range (0.5-10 volume percent) and low range (5-700 ppm) detector tubes for ammonia and the corresponding sampling pump. More sensitive ammonia detectors can be substituted for the low range detector tubes to improve the sensitivity of this practice.

WAC 296-62-41081 (Cont.)

- (iv) A shallow plastic pan (PVC) at least 12":14":1" and a half pint plastic container (PVC) with tightly closing lid.
 - (v) A graduated cylinder or other volumetric measuring device of at least fifty milliliters in volume with an accuracy of at least ± 1 milliliters.
- (e) Safety precautions.
 - (i) Concentrated aqueous ammonium hydroxide, NH_4OH is a corrosive volatile liquid requiring eye, skin, and respiratory protection. The person conducting the test must review the MSDS for aqueous ammonia.
 - (ii) Since the established permissible exposure limit for ammonia is 35 ppm as a 15 minute STEL, only persons wearing a positive pressure self-contained breathing apparatus or a supplied air respirator shall be in the chamber. Normally only the person wearing the total-encapsulating suit will be inside the chamber. A stand-by person shall have a self-contained breathing apparatus, or a positive pressure supplied air respirator available to enter the test area should the suited individual need assistance.
 - (iii) A method to monitor the suited individual must be used during this test. Visual contact is the simplest but other methods using communication devices are acceptable.
 - (iv) The test room must be large enough to allow the exercise protocol to be carried out and then to be ventilated to allow for easy exhaust of the ammonia test atmosphere after the test(s) are completed.
 - (v) Individuals must be medically screened for the use of respiratory protection and checked for allergies to ammonia before participating in this test procedure.
- (f) Test procedure.
 - (i) Measure the test area to the nearest foot and calculate its volume in cubic feet. Multiply the test area volume by 0.2 milliliters of concentrated aqueous ammonia per cubic foot of test area volume to determine the approximate volume of concentrated aqueous ammonia required to generate 1000 ppm in the test area.
 - (A) Measure this volume from the supply of concentrated ammonia and place it into a closed plastic container.
 - (B) Place the container, several high range ammonia detector tubes and the pump in the clean test pan and locate it near the test area entry door so that the suited individual has easy access to these supplies.
 - (ii) In a noncontaminated atmosphere, open a presealed ammonia indicator strip and fasten one end of the strip to the inside of the suit face shield lens where it can be seen by the wearer. Moisten the indicator strip with distilled water. Care must be taken not to contaminate the detector part of the indicator paper by touching it. A small piece of masking tape or equivalent should be used to attach the indicator strip to the interior of the suit face shield.
 - (iii) If problems are encountered with this method of attachment the indicator strip can be attached to the outside of the respirator facepiece being used during the test.

WAC 296-62-41081 (Cont.)

- (iv) Don the respiratory protective device normally used with the suit, and then don the TECP suit to be tested. Check to be sure all openings which are intended to be sealed (zippers, gloves, etc.) are completely sealed. DO NOT, however, plug off any venting valves.
- (v) Step into the enclosed test room such as a closet, bathroom, or test booth, equipped with an exhaust fan. No air should be exhausted from the chamber during the test because this will dilute the ammonia challenge concentrations.
- (vi) Open the container with the premeasured volume of concentrated aqueous ammonia within the enclosed test room, and pour the liquid into the empty plastic test pan. Wait two minutes to allow for adequate volatilization of the concentrated aqueous ammonia. A small mixing fan can be used near the evaporation pan to increase the evaporation rate of the ammonia solution.
- (vii) After two minutes a determination of the ammonia concentration within the chamber should be made using the high range colorimetric detector tube. A concentration of 1000 ppm ammonia or greater must be generated before the exercises are started.
- (viii) To test the integrity of the suit the following four minute exercise protocol should be followed:
 - (A) Raising the arms above the head with at least fifteen raising motions completed in one minute.
 - (B) Walking in place for one minute with at least fifteen raising motions of each leg in a one-minute period.
 - (C) Touching the toes with at least ten complete motions of the arms from above the head to touching of the toes in a one-minute period.
 - (D) Knee bends with at least ten complete standing and squatting motions in a one-minute period.
- (ix) If at any time during the test the colorimetric indicating paper should change colors the test should be stopped and (f)(x) and (xi) of this subsection initiated.
- (x) After completion of the test exercise, the test area concentration should be measured again using the high range colorimetric detector tube.
- (xi) Exit the test area.
- (xii) The opening created by the suit zipper or other appropriate suit penetration should be used to determine the ammonia concentration in the suit with the low range length of stain detector tube or other ammonia monitor. The internal TECP suit air should be sampled far enough from the enclosed test area to prevent a false ammonia reading.
- (xiii) After completion of the measurement of the suit interior ammonia concentration the test is concluded and the suit is doffed and the respirator removed.
- (xiv) The ventilating fan for the test room should be turned on and allowed to run for enough time to remove the ammonia gas. The fan must be vented to the outside of the building.

WAC 296-62-41081 (Cont.)

- (xv) Any detectable ammonia in the suit interior (5 ppm ammonia (NH₃) or more for the length of stain detector tube) indicates the suit failed the test. When other ammonia detectors are used, a lower level of detection is possible and it should be specified as the pass/fail criteria.
- (xvi) By following this test method an intrusion coefficient of approximately two hundred or more can be measured with the suit in a completely operational condition. If the intrusion coefficient is two hundred or more, then the suit is suitable for emergency response and field use.
- (g) Retest procedures.
 - (i) If the suit fails this test, check for leaks by following the pressure test in test (A) above.
 - (ii) Retest the TECP suit as outlined in the test procedure in (f) of this subsection.
- (h) Report.
 - (i) Each gas tight totally encapsulating chemical protective suit tested by this practice shall have the following information recorded.
 - (A) Unique identification number, identifying brand name, date of purchase, material of construction, and unique suit features; e.g., special breathing apparatus.
 - (B) General description of test room used for test.
 - (C) Brand name and purchase date of ammonia detector strips and color change data.
 - (D) Brand name, sampling range, and expiration date of the length of stain ammonia detector tubes. The brand name and model of the sampling pump should also be recorded. If another type of ammonia detector is used, it should be identified along with its minimum detection limit for ammonia.
 - (E) Actual test results must list the two test area concentrations, their average, the interior suit concentration, and the calculated intrusion coefficient. Retest data must be recorded as an additional test.
 - (ii) The evaluation of the data must be specified as “suit passed” or “suit failed” and the date of the test. Any detectable ammonia (5 ppm or greater for the length of stain detector tube) in the suit interior indicates the suit fails this test. When other ammonia detectors are used, a lower level of detection is possible and it should be specified as the pass/fail criteria.

Caution: Visually inspect all parts of the suit to be sure they are positioned correctly and secured tightly before putting the suit back into service. Special care should be taken to examine each exhaust valve to make sure it is not blocked.

Care should also be exercised to assure that the inside and outside of the suit is completely dry before it is put into storage.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41081, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41082 Appendix B--General description and discussion of the levels of protection and protective gear.

- (1) This appendix sets forth information about personal protective equipment (PPE) protection levels which may be used to assist employers in complying with the PPE requirements of this section.

WAC 296-62-41082 (Cont.)

- (2) As required by the standard, PPE must be selected which will protect employees from the specific hazards which they are likely to encounter during their work on-site.
- (3) Selection of the appropriate PPE is a complex process which must take into consideration a variety of factors. Key factors involved in this process are identification of the hazards or suspected hazards, their routes of potential hazard to employees (inhalation, skin absorption, ingestion, and eye or skin contact), and the performance of the PPE materials (and seams) in providing a barrier to these hazards. The amount of protection provided by PPE is material-hazard specific. That is, protective equipment materials will protect well against some hazardous substances and poorly, or not at all, against others. In many instances, protective equipment materials cannot be found which will provide continuous protection from the particular hazardous substance. In these cases the breakthrough time of the protective material should exceed the work durations.
- (4) Other factors in this selection process to be considered are matching the PPE to the employee's work requirements and task-specific conditions. The durability of PPE materials, such as tear strength and seam strength, must be considered in relation to the employee's tasks. The effects of PPE in relation to heat stress and task duration are a factor in selecting and using PPE. In some cases layers of PPE may be necessary to provide sufficient protection, or to protect expensive PPE inner garments, suits or equipment.
- (5) The more that is known about the hazards at the site, the easier the job of PPE selection becomes. As more information about the hazards and conditions at the site becomes available, the site supervisor can make decisions to upgrade or downgrade the level of PPE protection to match the tasks at hand.
- (6) The following are guidelines which an employer can use to begin the selection of the appropriate PPE. As noted above, the site information may suggest the use of combinations of PPE selected from the different protection levels (i.e., A, B, C, or D) as being more suitable to the hazards of the work. It should be cautioned that the listing below does not fully address the performance of the specific PPE material in relation to the specific hazards at the job site, and that PPE selection, evaluation and reselection is an ongoing process until sufficient information about the hazards and PPE performance is obtained.
- (7) Personal protective equipment has been divided into four categories based on the degree of protection afforded (see subsection (8) of this section for further explanation of Levels A, B, C, and D hazards):
 - (a) Level A. To be selected when the greatest level of skin, respiratory, and eye protection is required. The following constitute Level A equipment; it may be used as appropriate:
 - (i) Positive pressure, full-facepiece self-contained breathing apparatus (SCBA), or positive pressure supplied-air respirator with escape SCBA, approved by the National Institute for Occupational Safety and Health (NIOSH).
 - (ii) Totally encapsulating chemical-protective suit.
 - (iii) Coveralls.*
 - (iv) Long underwear.*
 - (v) Gloves, outer, chemical-resistant.
 - (vi) Gloves, inner, chemical-resistant.
 - (vii) Boots, chemical-resistant steel toe and shank.
 - (viii) Hard hat (under suit).*
 - (ix) Disposable protective suit, gloves, and boots. (Depending on suit construction, may be worn over totally encapsulating suit.)

WAC 296-62-41082 (Cont.)

*Optional, as applicable.

- (b) Level B. The highest level of respiratory protection is necessary but a lesser level of skin protection is needed. The following constitute Level B equipment; it may be used as appropriate:
- (i) Positive pressure, full-facepiece self-contained breathing apparatus (SCBA), or positive pressure supplied-air respirator with escape SCBA (NIOSH approved).
 - (ii) Hooded chemical-resistant clothing (overalls and long-sleeved jacket, coveralls, one or two-piece chemical-splash suit, disposable chemical-resistant overalls).
 - (iii) Coveralls.*
 - (iv) Gloves, outer, chemical-resistant.
 - (v) Gloves, inner, chemical-resistant.
 - (vi) Boots, outer, chemical-resistant steel toe and shank.
 - (vii) Boot-covers, outer, chemical-resistant (disposable).*
 - (viii) Hard hat.
 - (ix) Face shield.*

*Optional, as applicable.

- (c) Level C. The concentration(s) and type(s) of airborne substance(s) is known and the criteria for using air purifying respirators are met. The following constitute Level C equipment; it may be used as appropriate.
- (i) Full-face or half-mask, air purifying respirators (NIOSH approved).
 - (ii) Hooded chemical-resistant clothing (overalls; two-piece chemical-splash suit; disposable chemical-resistant overalls).
 - (iii) Coveralls.*
 - (iv) Gloves, outer, chemical-resistant.
 - (v) Gloves, inner, chemical-resistant.
 - (vi) Boots (outer), chemical-resistant steel toe and shank.*
 - (vii) Boot-covers, outer, chemical-resistant (disposable).*
 - (viii) Hard hat.
 - (ix) Escape mask.*
 - (x) Face shield.*

*Optional, as applicable.

WAC 296-62-41082 (Cont.)

- (d) Level D. A work uniform affording minimal protection: Used for nuisance contamination only. The following constitute Level D equipment; it may be used as appropriate.
 - (i) Coveralls.
 - (ii) Gloves.*
 - (iii) Boots/shoes, chemical-resistant steel toe and shank.
 - (iv) Boots, outer, chemical-resistant (disposable).*
 - (v) Safety glasses or chemical splash goggles.*
 - (vi) Hard hat.
 - (vii) Escape mask.*
 - (viii) Face shield.*

*Optional, as applicable.

- (8) Part B. The types of hazards for which Levels A, B, C, and D protection are appropriate are described below:

- (a) Level A - Level A protection should be used when:
 - (i) The hazardous substance has been identified and requires the highest level of protection for skin, eyes, and the respiratory system based on either the measured (or potential for) high concentration of atmospheric vapors, gases, or particulates; or the site operations and work functions involve a high potential for splash, immersion, or exposure to unexpected vapors, gases, or particulates of materials that are harmful to skin or capable of being absorbed through the intact skin;
 - (ii) Substances with a high degree of hazard to the skin are known or suspected to be present, and skin contact is possible; or
 - (iii) Operations are being conducted in confined, poorly ventilated areas, and the absence of conditions requiring Level A have not yet been determined.
- (b) Level B protection should be used when:
 - (i) The type and atmospheric concentration of substances have been identified and require a high level of respiratory protection, but less skin protection;
 - (ii) The atmosphere contains less than 19.5 percent oxygen; or
 - (iii) The presence of incompletely identified vapors or gases is indicated by a direct-reading organic vapor detection instrument, but vapors and gases are not suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through the skin.

Note: This involves atmospheres with IDLH concentrations of specific substances that present severe inhalation hazards and that do not represent a severe skin hazard; or that do not meet the criteria for use of air-purifying respirators.

WAC 296-62-41082 (Cont.)

- (c) Level C protection should be used when:
 - (i) The atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect or be absorbed through any exposed skin;
 - (ii) The types of air contaminants have been identified, concentrations measured, and an air-purifying respirator is available that can remove the contaminants; and
 - (iii) All criteria for the use of air-purifying respirators are met.
- (d) Level D protection should be used when:
 - (i) The atmosphere contains no known hazard; and
 - (ii) Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals.

Note: As stated before combinations of personal protective equipment other than those described for Levels A, B, C, and D protection may be more appropriate and may be used to provide the proper level of protection.

- (9) As an aid in selecting suitable chemical protective clothing, it should be noted that the National Fire Protection Association (NFPA) has developed standards on chemical protective clothing. The standards that have been adopted include:
 - (a) NFPA 1991 - Standard on Vapor-Protective Suits for Hazardous Chemical Emergencies (EPA Level A Protective Clothing);
 - (b) NFPA 1992 - Standard on Liquid Splash-Protective Suits for Hazardous Chemical Emergencies (EPA Level B Protective Clothing);
 - (c) NFPA 1993 - Standard on Liquid Splash-Protective Suits for Nonemergency, Nonflammable Hazardous Chemical Situations (EPA Level B Protective Clothing).
- (10) These standards apply documentation and performance requirements to the manufacture of chemical protective suits. Chemical protective suits meeting these requirements are labeled as compliant with the appropriate standard. It is recommended that chemical protective suits that meet these standards be used.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41082, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41084 Appendix C--Compliance guidelines.

- (1) For hazardous materials specialists (usually members of hazardous materials teams), the training will need to address the care, use and/or testing of chemical protective clothing including totally encapsulating suits, the medical surveillance program, the standard operating procedures for the hazardous materials team including the use of plugging and patching equipment and other subject areas.
- (2) Officers and leaders who may be expected to be in charge at an incident will need to be fully knowledgeable of their company's incident command system. They will need to know where and how to obtain additional assistance and be familiar with the local district's emergency response plan and the state emergency response plan.

WAC 296-62-41084 (Cont.)

- (3) Specialist employees such as technical experts, medical experts, or environmental experts that work with hazardous materials in their regular jobs, who may be sent to the incident scene by the shipper, manufacturer or governmental agency to advise and assist the person in charge of the incident will have training on an annual basis. Their training must include the care and use of personal protective equipment including respirators; knowledge of the incident command system and how they are to relate to it; and those areas needed to keep them current in their respective field as it relates to safety and health involving specific hazardous substances.
- (4) Those skilled support personnel, such as employees who work for public works departments or equipment operators who operate bulldozers, sand trucks, backhoes, etc., who may be called to the incident scene to provide emergency support assistance, will need to have at least a safety and health briefing before entering the area of potential or actual exposure. These specially skilled support personnel, who have not been a part of the emergency plan and do not meet the training requirements, must be made aware of the hazards they face and be provided all necessary protective clothing and equipment required for their tasks.
- (5) There are two National Fire Protection Association standards, NFPA 472--"Standard for Professional Competence of Responders to Hazardous Material Incidents" and NFPA 471--"Recommended Practice for Responding to Hazardous Material Incidents," which are excellent resource documents to aid fire departments and other emergency response organizations in developing their training program materials. NFPA 472 provides guidance on the skills and knowledge needed for first responder awareness level, first responder operations level, HAZMAT technicians, and HAZMAT specialist. It also offers guidance for the officer corp who will be in charge of hazardous substance incidents.
- (6) Decontamination. Decontamination procedures will be tailored to the specific hazards of the site and will vary in complexity, and number of steps, depending on the level of hazard and the employee's exposure to the hazard. Decontamination procedures and PPE decontamination methods will vary depending upon the specific substance, since one procedure or method will not work for all substances. Evaluation of decontamination methods and procedures should be performed, as necessary, to assure that employees are not exposed to hazards by reusing PPE. References in WAC 296-62-41085, Appendix D, may be used for guidance in establishing an effective decontamination program. In addition, the United States Coast Guard Manual, "Policy Guidance for Response to Hazardous Chemical Releases," United States Department of Transportation, Washington, D.C. (COMDTINST M16465.30), is a good reference for establishing an effective decontamination program.
- (7) Emergency response plans. States, along with designated districts within the states, will be developing or have developed emergency response plans. These state and district plans are to be used in the emergency response plans called for in this standard. Each employer needs to assure that its emergency response plan is compatible with the local plan. The major reference being used to aid in developing the state and local district plans is the Hazardous Materials Emergency Planning Guide, NRT-1. The current Emergency Response Guidebook from the United States Department of Transportation, CMA's CHEMTREC and the Fire Service Emergency Management Handbook may also be used as resources.
- (8) Personal protective equipment programs. The purpose of personal protective clothing and equipment (PPE) is to shield or isolate individuals from the chemical, physical, and biologic hazards that may be encountered at a hazardous substance site.
 - (a) As discussed in Appendix B, no single combination of protective equipment and clothing is capable of protecting against all hazards. Thus PPE should be used in conjunction with other protective methods and its effectiveness evaluated periodically.
 - (b) The use of PPE can itself create significant worker hazards, such as heat stress, physical and psychological stress, and impaired vision, mobility, and communication. For any given situation, equipment and clothing will be selected that provide an adequate level of protection. However, over protection, as well as under protection, can be hazardous and should be avoided where possible.

WAC 296-62-41084 (Cont.)

- (c) Two basic objectives of any PPE program will be to protect the wearer from safety and health hazards, and to prevent injury to the wearer from incorrect use and/or malfunction of the PPE. To accomplish these goals, a comprehensive PPE program will include hazard identification, medical monitoring, environmental surveillance, selection, use, maintenance, and decontamination of PPE and its associated training.
 - (d) The written PPE program will include policy statements, procedures, and guidelines. Copies will be made available to all employees and a reference copy will be made available at the worksite. Technical data on equipment, maintenance manuals, relevant regulations, and other essential information will also be collected and maintained.
- (9) Incident command system (ICS). WAC 296-62-40115(2) requires the implementation of an ICS. The ICS is an organized approach to effectively control and manage operations at an emergency incident. The individual in charge of the ICS is the senior official responding to the incident. The ICS is not much different than the “command post” approach used for many years by the fire service. During large complex fires involving several companies and many pieces of apparatus, a command post would be established. This enables one individual to be in charge of managing the incident, rather than having several officers from different companies making separate, and sometimes conflicting, decisions. The individual in charge of the command post would delegate responsibility for performing various tasks to subordinate officers. Additionally, all communications were routed through the command post to reduce the number of radio transmissions and eliminate confusion. However, strategy, tactics, and all decisions were made by one individual.
- (a) The ICS is a very similar system, except it is implemented for emergency response to all incidents, both large and small, that involve hazardous substances.
 - (b) For a small incident, the individual in charge of the ICS may perform many tasks of the ICS. There may not be any, or little, delegation of tasks to subordinates. For example, in response to a small incident, the individual in charge of the ICS, in addition to normal command activities, may become the safety officer and may designate only one employee (with proper equipment) as a back-up to provide assistance if needed. WISHA does recommend, however, that at least two employees be designated as back-up personnel since the assistance needed may include rescue.
 - (c) To illustrate the operation of the ICS, the following scenario might develop during a small incident, such as an overturned tank truck with a small leak of flammable liquid.
 - (d) The first responding senior officer would implement and take command of the ICS. That person would size-up the incident and determine if additional personnel and apparatus were necessary; would determine what actions to take to control the leak; and, determine the proper level of personal protective equipment. If additional assistance is not needed, the individual in charge of the ICS would implement actions to stop and control the leak using the fewest number of personnel that can effectively accomplish the tasks. The individual in charge of the ICS then would designate him or herself as the safety officer and two other employees as a back-up in case rescue may become necessary. In this scenario, decontamination procedures would not be necessary.
 - (e) A large complex incident may require many employees and difficult, time-consuming efforts to control. In these situations, the individual in charge of the ICS will want to delegate different tasks to subordinates in order to maintain a span of control that will keep the number of subordinates, that are reporting, to a manageable level.
 - (f) Delegation of tasks at large incidents may be by location, where the incident scene is divided into sectors, and subordinate officers coordinate activities within the sector that they have been assigned.

WAC 296-62-41084 (Cont.)

- (g) Delegation of tasks can also be by function. Some of the functions that the individual in charge of the ICS may want to delegate at a large incident are: Medical services; evacuation; water supply; resources (equipment, apparatus); media relations; safety; and, site control (integrate activities with police for crowd and traffic control). Also for a large incident, the individual in charge of the ICS will designate several employees as back-up personnel; and a number of safety officers to monitor conditions and recommend safety precautions.
 - (h) Therefore, no matter what size or complexity an incident may be, by implementing an ICS there will be one individual in charge who makes the decisions and gives directions; and, all actions and communications are coordinated through one central point of command. Such a system should reduce confusion, improve safety, organize and coordinate actions, and should facilitate effective management of the incident.
- (10) Site safety and control plans.
- (a) The safety and security of response personnel and others in the area of an emergency response incident site should be of primary concern to the incident commander. The use of a site safety and control plan could greatly assist those in charge of assuring the safety and health of employees on the site.
 - (b) A comprehensive site safety and control plan should include the following: Summary analysis of hazards on the site and a risk analysis of those hazards; site map or sketch; site work zones (clean zone, transition or decontamination zone, work or hot zone); use of the buddy system; site communications; command post or command center; standard operating procedures and safe work practices; medical assistance and triage area; hazard monitoring plan (air contaminant monitoring, etc.); decontamination procedures and area; and other relevant areas. This plan should be a part of the employer's emergency response plan or an extension of it to the specific site.
- (11) Medical surveillance programs.
- (a) Workers handling hazardous substances may be exposed to toxic chemicals, safety hazards, biologic hazards, and radiation. Therefore, a medical surveillance program is essential to assess and monitor workers' health and fitness for employment in hazardous waste operations and during the course of work; to provide emergency and other treatment as needed; and to keep accurate records for future reference.
 - (b) The Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities developed by the National Institute for Occupational Safety and Health (NIOSH), the Occupational Safety and Health Administration (OSHA), the United States Coast Guard (USCG), and the Environmental Protection Agency (EPA); October 1985 provides an excellent example of the types of medical testing that should be done as part of a medical surveillance program.
- (12) New technology and spill containment programs. Where hazardous substances may be released by spilling from a container that will expose employees to the hazards of the materials, the employer will need to implement a program to contain and control the spilled material. Diking and ditching, as well as use of absorbents like diatomaceous earth, are traditional techniques which have proven to be effective over the years. However, in recent years new products have come into the marketplace, the use of which complement and increase the effectiveness of these traditional methods. These new products also provide emergency responders and others with additional tools or agents to use to reduce the hazards of spilled materials.

These agents can be rapidly applied over a large area and can be uniformly applied or otherwise can be used to build a small dam, thus improving the workers' ability to control spilled material. These application techniques enhance the intimate contact between the agent and the spilled material allowing for the quickest effect by the agent or quickest control of the spilled material. Agents are available to solidify liquid spilled materials, to

WAC 296-62-41084 (Cont.)

suppress vapor generation from spilled materials, and to do both. Some special agents, which when applied as recommended by the manufacturer, will react in a controlled manner with the spilled material to neutralize acids or caustics, or greatly reduce the level of hazard of the spilled material.

There are several modern methods and devices for use by emergency response personnel or others involved with spill control efforts to safely apply spill control agents to control spilled material hazards. These include portable pressurized applicators similar to hand-held portable fire extinguishing devices, and nozzle and hose systems similar to portable fire fighting foam systems which allow the operator to apply the agent without having to come into contact with the spilled material. The operator is able to apply the agent to the spilled material from a remote position.

The solidification of liquids provides for rapid containment and isolation of hazardous substance spills. By directing the agent at run-off points or at the edges of the spill, the reactant solid will automatically create a barrier to slow or stop the spread of the material. Clean-up of hazardous substances is greatly improved when solidifying agents, acid or caustic neutralizers, or activated carbon absorbents are used. Properly applied, these agents can totally solidify liquid hazardous substances or neutralize or absorb them, which results in materials which are less hazardous and easier to handle, transport, and dispose of. The concept of spill treatment, to create less hazardous substances, will improve the safety and level of protection of employees working at spill clean-up operations or emergency response operations to spills of hazardous substances.

The use of vapor suppression agents for volatile hazardous substances, such as flammable liquids and those substances which present an inhalation hazard, is important for protecting workers. The rapid and uniform distribution of the agent over the surface of the spilled material can provide quick vapor knockdown. There are temporary and long-term foam-type agents which are effective on vapors and dusts, and activated carbon adsorption agents which are effective for vapor control and soaking-up of the liquid. The proper use of hose lines or hand-held portable pressurized applicators provides good mobility and permits the worker to deliver the agent from a safe distance without having to step into the untreated spilled material. Some of these systems can be recharged in the field to provide coverage of larger spill areas than the design limits of a single charged applicator unit. Some of the more effective agents can solidify the liquid flammable hazardous substances and at the same time elevate the flashpoint above 140 F so the resulting substance may be handled as a nonhazardous waste material if it meets the United States Environmental Protection Agency's 40 CFR Part 261 requirements (see particularly Sec. 261.21).

All workers performing hazardous substance spill control work are expected to wear the proper protective clothing and equipment for the materials present and to follow the employer's established standard operating procedures for spill control. All involved workers need to be trained in the established operating procedures; in the use and care of spill control equipment; and in the associated hazards and control of such hazards of spill containment work.

These new tools and agents are the things that employers will want to evaluate as part of their new technology program. The treatment of spills of hazardous substances or wastes at an emergency incident as part of the immediate spill containment and control efforts is sometimes acceptable to EPA and a permit exception is described in 40 CFR 264.1 (g)(8) and 265.1 (c)(11).

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41084, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41085 Appendix D--References. The following references may be consulted for further information on the subject of this notice:

- (1) OSHA Instruction DFO CPL 2.70 - January 29, 1986, Special Emphasis Program: Hazardous Waste Sites.
- (2) OSHA Instruction DFO CPL 2-2.37A - January 29, 1986, Technical Assistance and Guidelines for Superfund and Other Hazardous Waste Site Activities.
- (3) OSHA Instruction DTS CPL 2.74 - January 29, 1986, Hazardous Waste Activity Form, OSHA 175.

WAC 296-62-41085 (Cont.)

- (4) Hazardous Waste Inspections Reference Manual, U.S. Department of Labor, Occupational Safety and Health Administration, 1986.
- (5) Memorandum of Understanding Among the National Institute for Occupational Safety and Health, the Occupational Safety and Health Administration, the United States Coast Guard, and the United States Environmental Protection Agency; Guidance for Worker Protection During Hazardous Waste Site Investigations and Clean-up and Hazardous Substance Emergencies; December 18, 1980.
- (6) National Priorities List, 1st Edition, October 1984; U.S. Environmental Protection Agency, Revised periodically.
- (7) The Decontamination of Response Personnel, Field Standard Operating Procedures (F.S.O.P.) 7; U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Hazardous Response Support Division, December 1984.
- (8) Preparation of a Site Safety Plan, Field Standard Operating Procedures (F.S.O.P.) 9; U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Hazardous Response Support Division, April 1985.
- (9) Standard Operating Safety Guidelines; U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Hazardous Response Support Division, Environmental Response Team; November 1984.
- (10) Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute for Occupational Safety and Health (NIOSH), Occupational Safety and Health Administration (OSHA), U.S. Coast Guard (USCG), and Environmental Protection Agency (EPA); October 1985.
- (11) Protecting Health and Safety at Hazardous Waste Sites: An Overview, U.S. Environmental Protection Agency, EPA/625/9-85/006; September 1985.
- (12) Hazardous Waste Sites and Hazardous Substance Emergencies, NIOSH Worker Bulletin, U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health; December 1982.
- (13) Personal Protective Equipment for Hazardous Materials Incidents: A Selection Guide; U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health; October 1984.
- (14) Fire Service Emergency Management Handbook, International Association of Fire Chiefs Foundation, 101 East Holly Avenue, Unit 10B, Sterling, VA 22170, January 1985.
- (15) Emergency Response Guidebook, U.S. Department of Transportation, Washington, D.C., 1987.
- (16) Report to the Congress on Hazardous Materials Training, Planning and Preparedness, Federal Emergency Management Agency, Washington, D.C., July 1986.
- (17) Workbook for Fire Command, Alan V. Brunacini and J. David Beageron, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269, 1985.
- (18) Fire Command, Alan V. Brunacini, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269, 1985.
- (19) Incident Command System, Fire Protection Publications, Oklahoma State University, Stillwater, OK 74078, 1983.

WAC 296-62-41085 (Cont.)

- (20) Site Emergency Response Planning, Chemical Manufacturers Association, Washington, D.C. 20037, 1986.
- (21) Hazardous Materials Emergency Planning Guide, NRT-1, Environmental Protection Agency, Washington, D.C., March 1987.
- (22) Community Teamwork: Working Together to Promote Hazardous Materials Transportation Safety. U.S. Department of Transportation, Washington, D.C., May 1983.
- (23) Disaster Planning Guide for Business and Industry, Federal Emergency Management Agency, Publication No. FEMA 141, August 1987.

[Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41085, filed 03/23/99, effective 06/23/99.]

WAC 296-62-41086 Appendix E--Training curriculum guidelines. The following nonmandatory general criteria may be used for assistance in developing training curriculum used to meet the training requirements of Part R. These are generic guidelines and they are not presented as a complete training curriculum for any specific employer. Site-specific training programs must be developed on the basis of a needs assessment of the emergency response operation in accordance with this chapter (chapter 296-62 WAC, Part R).

The guidance set forth here presents a highly effective program that in the areas covered would meet or exceed the regulatory requirements. In addition, other approaches could meet the regulatory requirements.

Suggested general criteria:

Definitions:

Suggested core criteria:

“Competent” means possessing the skills, knowledge, experience, and judgment to perform assigned tasks or activities satisfactorily as determined by the employer.

“Demonstration” means the showing by actual use of equipment or procedures.

“Hands-on training” means training in a simulated work environment that permits each student to have experience performing tasks, making decisions, or using equipment appropriate to the job assignment for which the training is being conducted.

“Initial training” means training required before beginning work.

“Lecture” means an interactive discourse with a class lead by an instructor.

“Proficient” means meeting a stated level of achievement.

“Site-specific” means individual training directed to the operations of a specific job site.

“Training hours” means the number of hours devoted to lecture, learning activities, small group work sessions, demonstration, evaluations, or hands-on experience.

- (1) Training facility. The training facility should have available sufficient resources, equipment, and site locations to perform concise and hands-on training when appropriate. Training facilities should have sufficient organization, support staff, and services to conduct training in each of the courses offered.
- (2) Training director. Each training program should be under the direction of a training director who is responsible for the program. The training director should have a minimum of two years of employee education experience.

WAC 296-62-41086 (Cont.)

- (3) Instructors. Instructors should be deemed competent on the basis of previous documented experience in their area of instruction, successful completion of a “train-the-trainer” program specific to the topics they will teach, and an evaluation of instructional competence by the training director.
 - (a) Instructors should be required to maintain professional competency by participating in continuing education or professional development programs or by successfully completing an annual refresher course and having an annual review by the training director.
 - (b) The annual review by the training director should include observation of an instructor's delivery, a review of those observations with the trainer, and an analysis of any instructor or class evaluations completed by the students during the previous year.
- (4) Course materials. The training director should approve all course materials to be used by the training provider. Course materials should be reviewed and updated at least annually. Materials and equipment should be in good working order and maintained properly.
 - (a) All written and audio-visual materials in training curricula should be peer reviewed by technically competent outside reviewers or by a standing advisory committee.
 - (b) Reviewers should possess expertise in the following disciplines were applicable: Occupational health, industrial hygiene and safety, chemical/environmental engineering, employee education, or emergency response. One or more of the peer reviewers should be an employee experienced in the work activities to which the training is directed.
- (5) Students. The program for accepting students should include:
 - (a) Assurance that the student is or will be involved in work where chemical exposures are likely and that the student possesses the skills necessary to perform the work.
 - (b) A policy on the necessary medical clearance.
- (6) Ratios. Student-instructor ratios should not exceed thirty students per instructor. Hands-on activity requiring the use of personal protective equipment should have the following student-instructor ratios: For Level C or Level D personal protective equipment the ratio should be ten students per instructor. For Level A or Level B personal protective equipment the ratio should be five students per instructor.
- (7) Proficiency assessment. Proficiency should be evaluated and documented by the use of a written assessment and a skill demonstration selected and developed by the training director and training staff. The assessment and demonstration should evaluate the knowledge and individual skills developed in the course of training. The level of minimum achievement necessary for proficiency shall be specified in writing by the training director.
 - (a) If a written test is used, there should be a minimum of fifty questions. If a written test is used in combination with a skills demonstration, a minimum of twenty-five questions should be used. If a skills demonstration is used, the tasks chosen and the means to rate successful completion should be fully documented by the training director.
 - (b) The content of the written test or of the skill demonstration shall be relevant to the objectives of the course.

The written test and skill demonstration should be updated as necessary to reflect changes in the curriculum and any update should be approved by the training director.

- (c) The proficiency assessment methods, regardless of the approach or combination of approaches used, should be justified, documented and approved by the training director.

WAC 296-62-41086 (Cont.)

- (d) The proficiency of those taking the additional courses for supervisors should be evaluated and documented by using proficiency assessment methods acceptable to the training director. These proficiency assessment methods must reflect the additional responsibilities borne by supervisory personnel in hazardous waste operations or emergency response.
- (8) Course certificate. Written documentation should be provided to each student who satisfactorily completes the training course. The documentation should include:
 - (a) Student's name.
 - (b) Course title.
 - (c) Course date.
 - (d) Statement that the student has successfully completed the course.
 - (e) Name and address of the training provider.
 - (f) An individual identification number for the certificate.
 - (g) List of the levels of personal protective equipment used by the student to complete the course.
 - (i) This documentation may include a certificate and an appropriate wallet-sized laminated card with a photograph of the student and the above information.
 - (ii) When such course certificate cards are used, the individual identification number for the training certificate should be shown on the card.
- (9) Recordkeeping. Training providers should maintain records listing the dates courses were presented, the names of the individual course attendees, the names of those students successfully completing each course, and the number of training certificates issued to each successful student. These records should be maintained for a minimum of five years after the date an individual participated in a training program offered by the training provider. These records should be available and provided upon the student's request or as mandated by law.
- (10) Program quality control. The training director should conduct or direct an annual written audit of the training program. Program modifications to address deficiencies, if any, should be documented, approved, and implemented by the training provider. The audit and the program modification documents should be maintained at the training facility.

Suggested Program Quality Control Criteria:

Factors listed here are suggested criteria for determining the quality and appropriateness of employee health and safety training for hazardous waste operations and emergency response.

- (a) Training plan. Adequacy and appropriateness of the training program's curriculum development, instructor training, distribution of course materials, and direct student training should be considered, including:
 - (i) The duration of training, course content, and course schedules/agendas;
 - (ii) The different training requirements of the various target populations, as specified in the appropriate generic training curriculum;
 - (iii) The process for the development of curriculum, which includes appropriate technical input, outside review, evaluation, program pretesting.

WAC 296-62-41086 (Cont.)

- (iv) The adequate and appropriate inclusion of hands-on, demonstration, and instruction methods;
 - (v) Adequate monitoring of student safety, progress, and performance during the training.
- (b) Program management, training director, staff, and consultants. Adequacy and appropriateness of staff performance and delivering an effective training program should be considered, including:
 - (i) Demonstration of the training director's leadership in assuring quality of health and safety training;
 - (ii) Demonstration of the competency of the staff to meet the demands of delivering high quality hazardous waste employee health and safety training;
 - (iii) Organization charts establishing clear lines of authority;
 - (iv) Clearly defined staff duties including the relationship of the training staff to the overall program;
 - (v) Evidence that the training organizational structure suits the needs of the training program;
 - (vi) Appropriateness and adequacy of the training methods used by the instructors;
 - (vii) Sufficiency of the time committed by the training director and staff to the training program;
 - (viii) Adequacy of the ratio of training staff to students;
 - (ix) Availability and commitment of the training program of adequate human and equipment resources in the areas of:
 - (A) Health effects;
 - (B) Safety;
 - (C) Personal protective equipment (PPE);
 - (D) Operational procedures;
 - (E) Employee protection practices/procedures;
 - (x) Appropriateness of management controls;
 - (xi) Adequacy of the organization and appropriate resources assigned to assure appropriate training;
 - (xii) In the case of multiple-site training programs, adequacy of management of the satellite centers.
- (c) Training facilities and resources. Adequacy and appropriateness of the facilities and resources for supporting the training program should be considered, including:
 - (i) Space and equipment to conduct the training;
 - (ii) Facilities for representative hands-on training;

WAC 296-62-41086 (Cont.)

- (iii) In the case of multiple-site programs, equipment and facilities at the satellite centers;
 - (iv) Adequacy and appropriateness of the quality control and evaluations program to account for instructor performance;
 - (v) Adequacy and appropriateness of the quality control and evaluation program to ensure appropriate course evaluation, feedback, updating, and corrective action;
 - (vi) Adequacy and appropriateness of disciplines and expertise being used within the quality control and evaluation program;
 - (vii) Adequacy and appropriateness of the role of student evaluations to provide feedback for training program improvement.
- (d) Quality control and evaluation. Adequacy and appropriateness of quality control and evaluation plans for training programs should be considered, including:
 - (i) A balanced advisory committee and/or competent outside reviewers to give overall policy guidance;
 - (ii) Clear and adequate definition of the composition and active programmatic role of the advisory committee or outside reviewers;
 - (iii) Adequacy of the minutes or reports of the advisory committee or outside reviewers' meetings or written communication;
 - (iv) Adequacy and appropriateness of the quality control and evaluations program to account for instructor performance;
 - (v) Adequacy and appropriateness of the quality control and evaluation program to ensure appropriate course evaluation, feedback, updating, and corrective action;
 - (vi) Adequacy and appropriateness of disciplines and expertise being used within the quality control and evaluation program;
 - (vii) Adequacy and appropriateness of the role of student evaluations to provide feedback for training program improvement.
- (e) Students. Adequacy and appropriateness of the program for accepting students should be considered, including:
 - (i) Assurance that the student already possess the necessary skills for their job, including necessary documentation;
 - (ii) Appropriateness of methods the program uses to ensure that recruits are capable of satisfactorily completing training;
 - (iii) Review and compliance with any medical clearance policy.
- (f) Institutional environment and administrative support. The adequacy and appropriateness of the institutional environment and administrative support system for the training program should be considered, including:

WAC 296-62-41086 (Cont.)

- (i) Adequacy of the institutional commitment to the employee training program;
 - (ii) Adequacy and appropriateness of the administrative structure and administrative support.
- (g) Summary of evaluation questions. Key questions for evaluating the quality and appropriateness of an overall training program should include the following:
 - (i) Are the program objectives clearly stated?
 - (ii) Is the program accomplishing its objectives?
 - (iii) Are appropriate facilities and staff available?
 - (iv) Is there an appropriate mix of classroom, demonstration, and hands-on training?
 - (v) Is the program providing quality employee health and safety training that fully meets the intent of regulatory requirements?
 - (vi) What are the program's main strengths?
 - (vii) What are the program's main weaknesses?
 - (viii) What is recommended to improve the program?
 - (ix) Are instructors instructing according to their training outlines?
 - (x) Is the evaluation tool current and appropriate for the program content?
 - (xi) Is the course material current and relevant to the target group?

Suggested Training Curriculum Guidelines:

The following training curriculum guidelines are for those operations specifically identified in this Part R as requiring training. Issues such as qualifications of instructors, training certification, and similar criteria appropriate to all categories of operations addressed in this Part R have been covered in the preceding section and are not addressed in each of the generic guidelines.

- (h) Emergency response training.
 - (i) General considerations. Emergency response organizations are required to consider the topics listed in WAC 296-62-41020. Emergency response organizations may use some or all of the following topics to supplement those mandatory topics when developing their response training programs. Many of the topics would require an interaction between the response provider and the individuals responsible for the site where the response would be expected.
 - (A) Hazard recognition, including:
 - (I) Nature of hazardous substances present;
 - (II) Practical applications of hazard recognition, including presentations on biology, chemistry, and physics.
 - (B) Principles of toxicology, biological monitoring, and risk assessment.

WAC 296-62-41086 (Cont.)

- (C) Safe work practices and general site safety.
- (D) Engineering controls and hazardous waste operations.
- (E) Site safety plans and standard operating procedures.
- (F) Decontamination procedures and practices.
- (G) Emergency procedures, first aid, and self-rescue.
- (H) Safe use of field equipment.
- (I) Storage, handling, use and transportation of hazardous substances.
- (J) Use, care, and limitations of personal protective equipment.
- (K) Safe sampling techniques.
- (L) Rights and responsibilities of employees under WISHA and other related regulations and laws concerning right-to-know, safety and health, compensations and liability.
- (M) Medical monitoring requirements.
- (N) Community relations.
- (ii) Suggested criteria for specific courses.
 - (A) First responder awareness level.
 - (I) Review of and demonstration of competency in performing the applicable skills of WAC 296-62-41010.
 - (II) Hands-on experience with the U.S. Department of Transportation's Emergency Response Guidebook (ERG) and familiarization with WAC 296-800-170, the chemical hazard communication standard.
 - (III) Review of the principles and practices for analyzing an incident to determine both the hazardous substances present and the basic hazard and response information for each hazardous substance present.
 - (IV) Review of procedures for implementing actions consistent with the local emergency response plan, the organization's standard operating procedures, and the current edition of DOT's ERG including emergency notification procedures and follow-up communications.
 - (V) Review of the expected hazards including fire and explosions hazards, confined space hazards, electrical hazards, powered equipment hazards, motor vehicle hazards, and walking-working surface hazards.
 - (VI) Awareness and knowledge of the competencies for the First Responder at the Awareness Level covered in the National Fire Protection Association's Standard No. 472, Professional Competence of Responders to Hazardous Materials Incidents.

WAC 296-62-41086 (Cont.)

- (B) First responder operations level.
 - (I) Review of and demonstration of competency in performing the applicable skills of WAC 296-62-41010.
 - (II) Hands-on experience with the U.S. Department of Transportation's Emergency Response Guidebook (ERG), manufacturer material safety data sheets, CHEMTREC/CANUTEC, shipper or manufacturer contacts, and other relevant sources of information addressing hazardous substance releases. Familiarization with WAC 296-800-170, the chemical hazard communication standard.
 - (III) Review of the principles and practices for analyzing an incident to determine the hazardous substances present, the likely behavior of the hazardous substance and its container, the types of hazardous substance transportation containers and vehicles, the types and selection of the appropriate defensive strategy for containing the release.
 - (IV) Review of procedures for implementing continuing response actions consistent with the local emergency response plan, the organization's standard operating procedures, and the current edition of DOT's ERG including extended emergency notification procedures and follow-up communications.
 - (V) Review of the principles and practice for proper selection and use of personal protective equipment.
 - (VI) Review of the principles and practice of personnel and equipment decontamination.
 - (VII) Review of the expected hazards including fire and explosions hazards, confined space hazards, electrical hazards, powered equipment hazards, motor vehicle hazards, and walking-working surface hazards.
 - (VIII) Awareness and knowledge of the competencies for the First Responder at the Operations Level covered in the National Fire Protection Association's Standard No. 472, Professional Competence of Responders to Hazardous Materials Incidents.
- (C) Hazardous materials technician.
 - (I) Review of and demonstration of competency in performing the applicable skills of WAC 296-62-41010.
 - (II) Hands-on experience with written and electronic information relative to response decision making including, but not limited to, the U.S. Department of Transportation's Emergency Response Guidebook (ERG), manufacturer material safety data sheets, CHEMTREC/CANUTEC, shipper or manufacturer contacts, computer data bases and response models, and other relevant sources of information addressing hazardous substance releases. Familiarization with WAC 296-800-170, the chemical hazard communication standard.

WAC 296-62-41086 (Cont.)

- (III) Review of the principles and practices for analyzing an incident to determine the hazardous substances present, their physical and chemical properties, the likely behavior of the hazardous substance and its container, the types of hazardous substance transportation containers and vehicles involved in the release, the appropriate strategy for approaching release sites and containing the release.
 - (IV) Review of procedures for implementing continuing response actions consistent with the local emergency response plan, the organization's standard operating procedures, and the current edition of DOT's ERG including extended emergency notification procedures and follow-up communications.
 - (V) Review of the principles and practice for proper selection and use of personal protective equipment.
 - (VI) Review of the principles and practices of establishing exposure zones, proper decontamination and medical surveillance stations and procedures.
 - (VII) Review of the expected hazards including fire and explosions hazards, confined space hazards, electrical hazards, powered equipment hazards, motor vehicle hazards, and walking-working surface hazards.
 - (VIII) Awareness and knowledge of the competencies for the Hazardous Materials Technician covered in the National Fire Protection Association's Standard No. 472, Professional Competence of Responders to Hazardous Materials Incidents.
- (D) Hazardous materials specialist.
- (I) Review of and demonstration of competency in performing the applicable skills of WAC 296-62-41010.
 - (II) Hands-on experience with retrieval and use of written and electronic information relative to response decision making including, but not limited to, the U.S. Department of Transportation's Emergency Response Guidebook (ERG), manufacturer material safety data sheets, CHEMTREC/CANUTEC, shipper or manufacturer contacts, computer data bases and response models, and other relevant sources of information addressing hazardous substance releases. Familiarization with WAC 296-800-170, the chemical hazard communication standard.
 - (III) Review of the principles and practices for analyzing an incident to determine the hazardous substances present, their physical and chemical properties, and the likely behavior of the hazardous substance and its container, vessel, or vehicle.
 - (IV) Review of the principles and practices for identification of the types of hazardous substance transportation containers, vessels and vehicles involved in the release; selecting and using the various types of equipment available for plugging or patching transportation containers, vessels or vehicles; organizing and directing the use of multiple teams of hazardous material technicians and selecting the appropriate strategy for approaching release sites and containing or stopping the release.

WAC 296-62-41086 (Cont.)

- (V) Review of procedures for implementing continuing response actions consistent with the local emergency response plan, the organization's standard operating procedures, including knowledge of the available public and private response resources, establishment of an incident command post, direction of hazardous material technician teams, and extended emergency notification procedures and follow-up communications.
- (VI) Review of the principles and practice for proper selection and use of personal protective equipment.
- (VII) Review of the principles and practices of establishing exposure zones and proper decontamination, monitoring and medical surveillance stations and procedures.
- (VIII) Review of the expected hazards including fire and explosions hazards, confined space hazards, electrical hazards, powered equipment hazards, motor vehicle hazards, and walking-working surface hazards.
- (IX) Awareness and knowledge of the competencies for the Off-site Specialist Employee covered in the National Fire Protection Association's Standard No. 472, Professional Competence of Responders to Hazardous Materials Incidents.

(E) Incident commander.

The incident commander is the individual who, at any one time, is responsible for and in control of the response effort. This individual is the person responsible for the direction and coordination of the response effort. An incident commander's position should be occupied by the most senior, appropriately trained individual present at the response site. Yet, as necessary and appropriate by the level of response provided, the position may be occupied by many individuals during a particular response as the need for greater authority, responsibility, or training increases. It is possible for the first responder at the awareness level to assume the duties of incident commander until a more senior and appropriately trained individual arrives at the response site.

Therefore, any emergency responder expected to perform as an incident commander should be trained to fulfill the obligations of the position at the level of response they will be providing including the following:

- (I) Ability to analyze a hazardous substance incident to determine the magnitude of the response problem.
- (II) Ability to plan and implement an appropriate response plan within the capabilities of available personnel and equipment.
- (III) Ability to implement a response to favorably change the outcome of the incident in a manner consistent with the local emergency response plan and the organization's standard operating procedures.
- (IV) Ability to evaluate the progress of the emergency response to ensure that the response objectives are being met safely, effectively, and efficiently.

WAC 296-62-41086 (Cont.)

- (V) Ability to adjust the response plan to the conditions of the response and to notify higher levels of response when required by the changes to the response plan.

[Statutory Authority: RCW 49.17.010, .040, .050. 01-11-038, (Order 99-36), § 296-62-41086, filed 05/09/01, effective 09/01/01.
Statutory Authority: RCW 49.17.040. 99-07-097 (Order 98-38), § 296-62-41086, filed 03/23/99, effective 06/23/99.]